



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,948	12/06/2001	Reinhard Berger	GS 0466 A US	5713

7590 07/29/2003

Alfred J. Mangels
4729 Cornell Road
Cincinnati, OH 45241-2433

EXAMINER

BURCH, MELODY M

ART UNIT	PAPER NUMBER
----------	--------------

3683

DATE MAILED: 07/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/010,948

Applicant(s)

BERGER ET AL.

Examiner

Melody M. Burch

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of the electric motor including a rotatable drive shaft having a longitudinal axis that is substantially parallel to the longitudinal axis of the tooled rack as claimed in new claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Examiner notes that as best shown in figure 2 of the instant invention, the longitudinal axis of the drive shaft 6 is substantially perpendicular to the longitudinal axis of the tooled rack 10.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "a transmission" in line 1 of the claim is indefinite. It is unclear to the Examiner whether the transmission claimed in claim 17 is intended to be the same or different from the automatic transmission claimed in claim 1. Since the claims appear to

Art Unit: 3683

be directed to the subcombination of the actuator and since an automatic transmission has not been shown, it is suggested that the "transmission" of claim 17 is different from that of claim 1. Accordingly, the Examiner has interpreted the "transmission" of claim 17 to be the rotatable shaft 6 that transmits the energy from the motor to the gear.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 11, 12, 13, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4635491 to Yamano et al.

Re: claims 1, 2, 11, 15, and 17. Yamano et al. show in figure 1 an actuator capable of being used for actuating an automatic clutch or an automatic transmission, the actuator comprising: a housing 11,25 that includes an axially-extending first receptacle 11; a toothed rack 8,9 slidably received within the first receptacle for linear movement along a rack longitudinal axis, a second receptacle shown in the area of element number 25 adjacent to the first receptacle and within which second receptacle

a gear 3 is rotatably carried, wherein the gear is in meshing engagement with the toothed rack via elements 21,22,26,27,6,7 for linearly moving the toothed rack within the first receptacle; and an electric motor 1 drivingly connected with the gear, wherein the electric motor and the gear are provided as a pre-assembled unit that is capable of being removed and is connected with the housing as shown.

Re: claims 12 and 13. Yamano et al. show in figure 1 the limitation wherein the toothed rack is supported in bearing 12 and the unnumbered bearings shown below element 12 carried adjacent (radially inward) end areas of the first receptacle.

6. Claims 1, 2, 11, 12, 13, 15, 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application 2003/0094328 to Esly et al.

Re: claims 1, 2, 11, 15, 16, and 17. Esly et al. show in figure 2 an actuator for actuating an automatic clutch or an automatic transmission, the actuator comprising: a housing 206,220 that includes an axially-extending first receptacle or area of element 220 through which element 209 penetrates; a toothed rack 209 slidably received within the first receptacle for linear movement along a rack longitudinal axis, a second receptacle shown in the area of element number 206 adjacent to the first receptacle and within which second receptacle a spur gear 207 (paragraph 91 line 3) is rotatably carried, wherein the gear is in meshing engagement with the toothed rack via elements for linearly moving the toothed rack within the first receptacle; and an electric motor 205 drivingly connected with the gear, wherein the electric motor and the gear are provided as a pre-assembled unit that is removably connected with the housing as shown to the same extent as Applicant's.

Art Unit: 3683

Re: claims 12 and 13. Esly et al. show in figure 2 the limitation wherein the toothed rack is supported in bearings 210 carried adjacent end areas of the first receptacle.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3683

8. Claims 1-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4951915 to Piao in view of Yamano et al.

Re: claims 1, 2, 11, and 17. Piao shows in figures 1 and 2 an actuator capable of actuating an automatic clutch or an automatic transmission, the actuator comprising: a housing 1 that includes an axially-extending first cylindrical receptacle 14; a toothed rack 52 slidably received within the first receptacle for linear movement along a rack longitudinal axis; a second receptacle shown in the area of element number 8 adjacent to the first receptacle and within which second receptacle a gear 71 is rotatably carried, wherein the gear is in meshing engagement with the toothed rack via intervening gears for linearly moving the toothed rack within the first receptacle, and an electric motor 7 drivingly connected with the gear with the electric motor and the gear being removably connected to the housing but does not specifically disclose that the electric motor and the gear are provided as a pre-assembled unit.

Yamano et al. teach the use of an electric motor 1 being pre-assembled with a gear 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electric motor and the gear of Piao to have included a motor and a gear assembled as a pre-assembled unit, as taught by Yamano et al., in order to provide a means of reducing the complexity of manufacturing.

Re: claim 3. Piao shows in figure 2 an energy accumulator 511 positioned between and in contact with the toothed rack and the housing, and wherein the toothed rack is movable in a first direction of movement that is opposite to a force imposed on

Art Unit: 3683

the toothed rack by the energy accumulator, and is movable in a second direction by the force of the energy accumulator.

Re: claims 4-6. Piao shows in figure 2 the limitation wherein the energy accumulator contacts the toothed rack at a first protrusion shown in the area of the lead line associated with element number 5 extending outwardly from the toothed rack.

With regards to claim 6 it is noted that in *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) the court held that the use of a one piece construction instead of several parts rigidly secured together would be merely a matter of obvious engineering choice.

Re: claims 7-9. Piao shows in figure 2 wherein the energy accumulator contacts the housing as shown on the left side of element 511 at an inwardly extending second protrusion within the housing.

Re: claim 10. Piao discloses the first protrusion on the toothed rack as shown to the same extent as Applicant's. Examiner takes Official Notice the fact that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized interlocking, friction locking, force locking, material locking connection, or any other suitable means of connecting the first protrusion and the toothed rack as determined by routine experimentation to provide a means of securely attaching the two components. Additionally, Examiner notes that the patentability of a product does not depend on its method of production. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

Art Unit: 3683

9. Claims 1, 2, 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5125290 to Cotter in view of Yamano et al. and US Patent 3400593 to Darnell.

Re: claims 1, 2, and 11. Cotter show in figures 1, 2, and 9 an actuator capable of actuating an automatic clutch or an automatic transmission, the actuator comprising: a housing 26 that includes an axially-extending first receptacle shown in the area above element number 26 in which element 18 is located, a toothed rack 18 slidably received within the first receptacle for linear movement along a rack longitudinal axis, a second receptacle shown in figures 9 and 11 in the area of element number 22 adjacent to the first receptacle and within which second receptacle a gear 22 is rotatably carried, wherein the gear is in meshing engagement with the toothed rack as shown in figure 9 for linearly moving the toothed rack within the first receptacle, and a driving means as disclosed in col. 1 line 65 drivingly connected with the gear with the driving means and the gear being removable, but does not specifically disclose that the driving means is an electric motor nor that the electric motor and the gear are provided as a preassembled unit.

Darnell teaches in figure 1 the use of a similar actuator arrangement having a rack and pinion gear mechanism that is driven by an electric motor 19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the driving means of Cotter to have included an electric motor, as taught by Darnell, in order to provide an old and well-known means of driving the rotation of the gear to result in the linear motion of the toothed rack.

Art Unit: 3683

Yamano et al. teach the use of an electric motor 1 being pre-assembled with a gear 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electric motor and the gear of Cotter, as modified, to have included a motor and a gear assembled as a pre-assembled unit, as taught by Yamano et al., in order to provide a means of reducing the complexity of manufacturing.

Re: claims 12 and 13. Cotter shows in figure 9 the limitation of the toothed rack being supported in bearings 66(L),66(R) carried by adjacent end areas of the first receptacle as shown.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamano et al. in view of US Patent 5860317 to Laithwaite et al. Yamano et al. describe the invention substantially as set forth above, but do not include the specific limitation of the gear being a spur gear.

Laithwaite et al. teach the use of an actuator having a motor drivingly connected to a spur gear 28.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the gear of the actuator of Yamano et al. to have included a spur gear, as taught by Laithwaite et al., in order to achieve a particular mechanical advantage.

Allowable Subject Matter

11. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the

Art Unit: 3683

base claim and any intervening claims. US Patent 4745822 to Trachman et al. teach the limitation of washers/bearings 38,39 carried adjacent the radially inward end area of a first receptacle 30 and teach the limitation of one of the bearings defining a stop for an energy accumulator 60, but does not show the toothed rack 20 being supported in the bearings and does not show the limitation of the bearings being carried by the first receptacle.

Response to Arguments

12. Applicant's arguments filed 5/30/03 have been fully considered but they are not persuasive.

With regard to the Yamano et al. reference, Applicant argues that the device disclosed in the Yamano et al. reference is structurally and operationally different from that of the invention. Examiner notes that Applicant broadly claims an actuator including a gear driving a toothed rack which is capable of being used for actuating an automatic clutch or transmission. Yamano et al. describe an actuator including a gear driving a toothed rack that is also capable of being used for actuating any linearly actuated system including an automatic clutch or transmission. Examiner maintains the rejections in view of Yamano et al. since the claim language functionally (and not positively) recites the relationship between the actuator and a clutch or transmission. With regard to the toothed rack, the arguments are moot in view of new grounds of rejection necessitated by amendment. Finally, Applicant argues that the structure of Yamano et al. involves a unitary, integrally formed housing, not one involving separate receptacles as claimed. Examiner notes that although the housing in Yamano et al. is

Art Unit: 3683

integrally formed, it still satisfies the limitation of having first and second receptacles (areas that receive or contain something) as shown. Even if Applicant amended the claims to preclude the housing having the first and second receptacles from being a unitary piece, Examiner notes that the limitation would not overcome the patent application to Esly et al. or US Patent 5364066 to Dorste et al. which clearly shows a housing having separate pieces 16 and 50,102 having the first and second receptacles, respectively.

With regard to the arguments involving the Piao, Cotter, and Darnell references, Examiner notes that it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the prior art references are reasonably pertinent to the particular problem since both the Piao reference, for example, and the instant invention are directed to actuators in which a motor drives a gear which causes linear movement of a toothed rack. Examiner also maintains that one in the electrically actuated gear and toothed rack art faced with a manufacturing issue would look to any other electrically actuated gear and toothed rack type device for a teaching of how to reduce the complexity of manufacturing the device to help reduce the device's time to market and assembly costs.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Art Unit: 3683

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

mmb 7/18/03
mmb
July 18, 2003

M. C. Graham
7/24/2003
MATTHEW C. GRAHAM
PRIMARY EXAMINER
GROUP 310